TIMAN, A.F.

Supplement to A.V. Efimov's work "Valuating the continuity modulus of class H_2^1 functions." Izv. AN SSSR. Ser. mat. 21 no.4:595-598 Jl-Ag '57.

(MIRA 11:6)

(Functions, Continuous)

TIMAN, A.F.

Inverse theorems in the constructive theory of functions given on a finite segment of the real axis. Dokl. AN SSSR 116 no.5:762-765
(MIRA 11:2)
O '57.

1.Dnepropetrovskiy gosudarstvennyy universitet im. 300-letya vossoyedineniya Ukrainy s Rossiyey. Predstavleno akademikom S.N. Bernshteynom.   (Functions)

TIMAN, A.F.

A note on a theorem of S.M.Nikol'skii. Usp.mat.nauk 12 no.3:225-227
My-Je '57.   (MIRA 10:10)
                          (Approximate computation)

TIMAN A F

20-5-12/48

AUTHOR: TIMAN A.F.

TITLE: Reversion Theorems of the Constructive Function Theory for
Functions Defined on a Finite Interval of the Real Axis (Obratnyye
teoremy konstruktivnoy teorii funktsiy, zadannykh na konechnom
otrezke veshchestvennoy osi)

PERIODICAL: Doklady Akad.Nauk SSSR,   1957,Vol.116,Nr.5,pp.762-765 (USSR)

ABSTRACT: At first the author formulates (theorem 1) an older own result
[Ref.6] and a theorem (theorem 2) of Bernshteyn S.N. [Ref.2] .
Then in essential with the method of Bernsteyn for the reversion
of the theorems of the real constructive analysis he proves two
reversion theorems belonging to theorem 1.
Theorem 3: Let be given a function $f(x)$ defined on $[-1,+1]$[#] If
there exists a sequence of ordinary polynomials such that there
holds

$$\left| f(x) - P_n(x) \right| \leq \omega \left[\frac{1}{n} \left(\sqrt{1-x^2} + \frac{|x|}{n} \right) \right] , \qquad x \in [-1,+1] ,$$

then there exists a positive constant C depending not on h such
that

$$\omega(f,h) \quad Ch \int_h^1 \frac{\omega(u)}{u^2} \, du , \qquad 0 < h \leq \frac{1}{2} .$$

Card 1/2

[#] with the modul of continuity $\omega(h)$

Reversion Theorems of the Constructive Function Theory for   20-5-12/48
Functions Defined on a Finite Interval of the Real Axis

Theorem 4: Let a function $f(x)$ defined on $[-1,+1]$ have the modul. of continuity $\omega(h)$, $\int_0 \frac{\omega(u)}{u} du < \infty$.

If there exist polynomials $P_n(x)$ such that

$$|f(x)-P_n(x)| \leq \frac{1}{n^r} (\sqrt{1-x^2}+ \frac{|x|}{n})^r \omega \left[\frac{1}{n} (\sqrt{1-x^2}+ \frac{x}{n}) \right] , \quad x \in [-1,+1],$$

then $f(x)$ has a continuous r-th derivative $f^{(r)}(x)$, where on $[-1,+1]$

$$\omega(f^{(r)},h) \leq C \left\{ h \int_h^1 \frac{\omega(u)}{u^2} du + \int_0^h \frac{\omega(u)}{u} du \right. , \quad 0 < h < \frac{1}{2} .$$

Eleven Soviet and 2 foreign references are quoted.

PRESENTED:
ASSOCIATION: By S.N.Bernshtayn, Academician, April 27, 1957
Dnepropetrovsk State University Imeni 300th Anniversary of the Reunion of Ukraine with Russia   (Dnepropetrovskiy gosudarstvennyy universitet im. 300-letiya vossoedineniya Ukrainy s Rossiey)

SUBMITTED: January 7, 1957
AVAILABLE: Library of Congress

Card 2/2
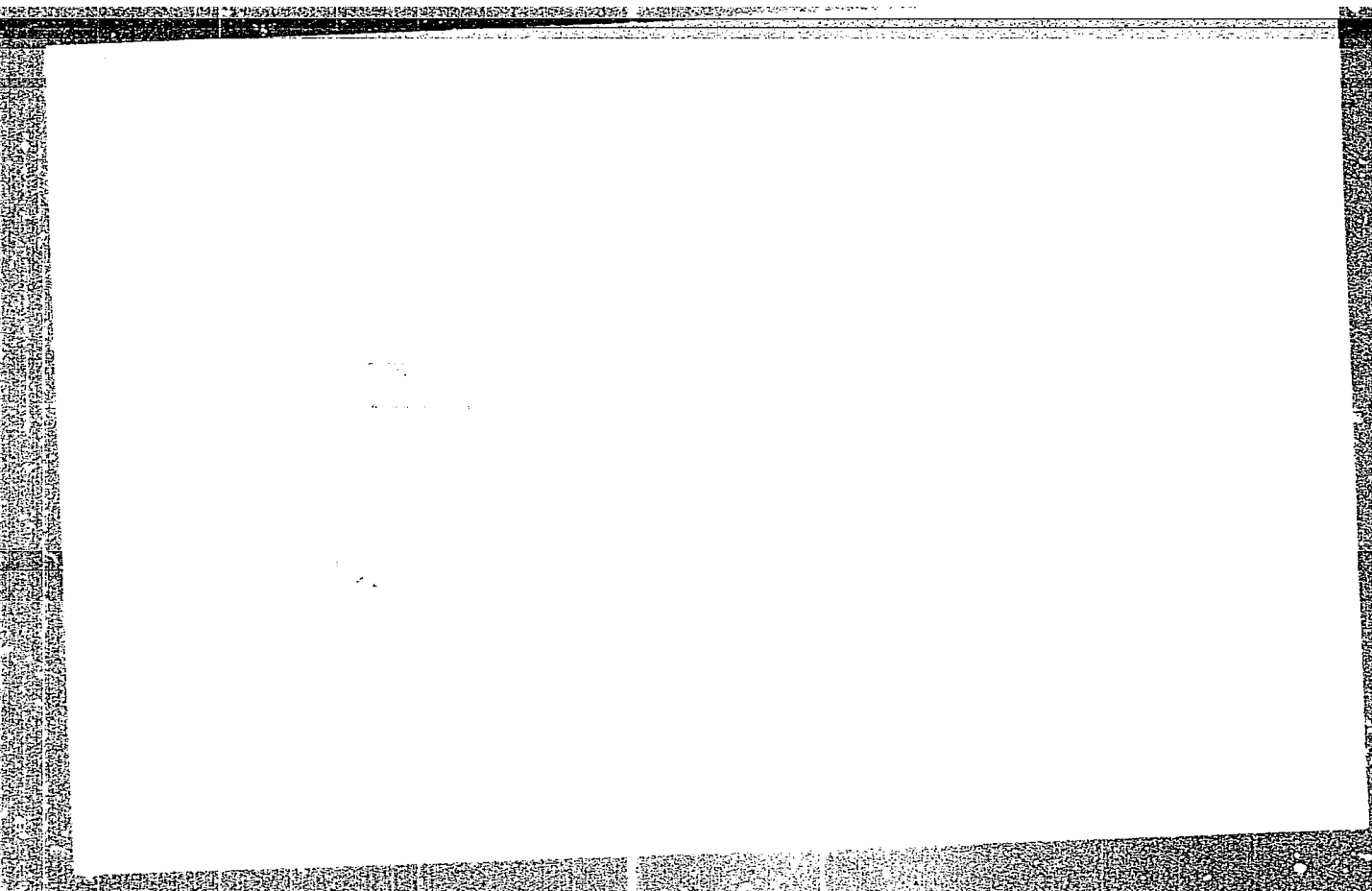
TIMAN, Aleksandr Filippovich; VIDENSKIY, V.S., red.; KRYUCHKOVA, V.N., tekhn.red.

[Approximation theory of functions of real variables] Teoriia priblizheniia funktsii deistvitel'nogo peremennogo. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1960. 624 p.   (MIRA 13:7)
                  (Functions of real variables)

S/038/60/024/03/07/008

AUTHOR: Timan, A.F.

TITLE: On the Question on Simultaneous Approximations of Functions and
         Their Derivatives on the Whole Number Line

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya matematicheskaya, 1960,
                                              Vol. 24, No. 3, pp. 421-430

TEXT: On the whole real axis the author considers the simultaneous
approximation of arbitrary differentiable functions and their derivatives
by entire functions of exponential type. The approximation theorem of S.N.
Bernshteyn on functions bounded and uniformly continuous on $(-\infty, \infty)$ is
generalized. It is stated that for a uniform approximation of arbitrary
functions the constants in question sometimes are essentially greater than
the corresponding constants for an approximation of the 2π- periodic
functions by trigonometric polynomials.
The author mentions A.N. Kolmogorov, N.I. Akhiyezer, B.M. Levitan, A.L.
Garkavi and M.G. Kreyn. There are 11 references : 7 Soviet, 1 English,
1 French, 1 Austrian and 1 Swedish.
PRESENTED: by S.N. Bernshteyn, Academician
SUBMITTED: November 3, 1958

Card 1/1

PHASE I BOOK EXPLOITATION   SOV/4372

Timan, Aleksandr Filippovich

Teoriya priblizheniya funktsiy deystvitel'nogo peremennogo (Approximation Theory
for Functions of a Real Variable) Moscow, Fizmatgiz, 1960. 624 p. 8,000
copies printed.

Ed.: V.S. Videnskiy; Tech. Ed.: V.N. Kryuchkova.

PURPOSE: This book is intended for aspirants and students in advanced mathematics
courses. It may also be of interest to scientific workers in the field of the
theory of functions.

COVERAGE: The book is based on lectures given by the author to students in advanced
mathematics courses and aspirants of the Department of Physics and Mathematics,
Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University).
Some basic parts of the modern approximation theory for functions of a real
variable are presented. The material is grouped around problems of the relation-
ship between the optimum approximation of functions and their structural properties

Card 1/10

Approximation Theory for Functions (Cont.)   SOV/4372

The fundamental theorems of Weierstrass, Chebyshev, and Bernshteyn are developed
and made more precise. The material contained in the book presupposes, in
addition to a course in general analysis, a knowledge of the fundamentals of
the theories of functions of both real and complex variables and the elements of
functional analysis. There are 331 references: 230 Soviet, 35 German, 34
English, and 32 French.

TABLE OF CONTENTS:

Card 2/10

TIMAN, BL.

USSR.

Effect of mutually interacting particles on the ionization equilibrium in a thermally ionized gas. B. L. Timan. (Mining Inst., Dnepropetrovsk). Zhur. Eksptl. i Teoret. Fiz. 25, 733-7(1953).—The ionization equil. in a gas at high temps. and pressures is considered theoretically and mathematically. The interaction of the gas particles leads to a shift of equil. for thermal ionization in the direction of more ionized particles at higher pressures. The Saha equation is applicable only at pressures not above 50 atm. For air the experimentally detd. adiabatic specific resistance is lower at 1000 and higher at 9000 atm. than are the theoretical values, the curves crossing at 4000 atm. pressure (temps. 1700 up to 2300°K.).   F. H. Rathmann

TIMAN, B.L.

USSR/Physics - Heat capacity

FD-807

Card 1/1   Pub. 146-20/21

Author   : Timan, B. L.

Title   : Heat capacity of gas at high temperatures

Periodical : Zhur. eksp. i teor. fiz., 27, 262-264, Aug 1954

Abstract   : Attempts to clarify the effect of thermal ionization on the heat
              capacity of gas at high temperatures. Finds that during the heating
              of gas a substantial amount of heat is spent on ionization and on the
              kinetic energy transferred to particles formed during ionization. This
              noticeably affects the heat capacity of the gas. Indebted to I. L.
              Aptekar'. One reference.

Institution : Dnepropetrovsk Mining Institute

Submitted   : January 27, 1954

FD-994

USSR/Physics - Ions of ammonia

Card 1/1   Pub. 146 - 18/20

Author   : Timan, B. L.

Title   : Influence of ions upon a chemical reaction in a gas

Periodical : Zhur. eksp. i teor. fiz., 27, No 5 (11), 653-654, Nov 1954

Abstract   : Considers the factors that cause an increase in the production of
              ammonia in chemical reactions where the partial pressure of the ions
              must be taken into account, as when the products and original sub-
              stances interact strongly with ions. Three references, 2 Western and
              1 USSR (B. L. Timan, ibid., 25, 733, 1953).

Institution : Dnepropetrovsk Mining Institute

Submitted   : February 23, 1954

ACCESSION NR: AP4013088

S/0126/64/017/001/0020/0023

AUTHORS: Geguzina, S. Ya.; Timan, B. L.

TITLE: Propagation of sound in an elastic anisotropic two phase mixture

SOURCE: Fizika metallov i metalloved., v. 17, no. 1, 1964, 20-23

TOPIC TAGS: sound propagation, elastic anisotropic mixture, elastic adiabatic wave, internal stress, thermodynamic equilibrium, sound energy attenuation

ABSTRACT: The propagation of sound in a two-phase mixture in the isotropic case has previously been presented by M. A. Krivoglaz (FMM, 1960, 10, 497). The authors investigated the propagation of an elastic adiabatic wave in a two-phase mixture in a state of thermodynamic equilibrium. The internal stresses and temperature change arising with the passage of a wave lead to the disruption of equilibrium of the phase and give rise to an irreversible phase change, leading to the dissipation of energy and attenuation of the wave. The equation of an elastic wave in the general case is

$$\rho u_i = \frac{\partial \sigma_{ik}}{\partial x_k}, \quad (1)$$

where u_i is the i-y vector component of dislocation, σ_{ik} is the stress tensor, and

Card 1/4

ACCESSION NR: AP4013088

ρ is the average density. A solution was sought in the form $u_i = u_{0i} e^{i(kr - \omega t)}$ (2).
The elastic potential was written in a suitable form, considering the effects of
temperature change and the change of the molar concentration. The case of high
thermoconductivity and a low frequency was examined. The adiabatic stipulation of
the process has the form

$$\delta S = -\frac{q}{T} \delta p + \frac{C_p}{T} T' + \frac{1}{3} \alpha V \sigma_{ll} = 0. \quad (3)$$

Here all quantities pertain to a single gram-molecule: q is the heat of the phase
change, C_p is the thermal capacity of the two-phase mixture (in the absence of a
phase change) with a constant pressure. For the speed of the phase change the
expression of Krivoglaz was used

$$\frac{dp}{dt} = -\frac{uq}{rRT^2}(T' - T'_\sigma)_* \quad r = \frac{mV'}{S} \quad (4)$$

Here m is the number of gram-molecules in the system. R is the gas constant, r is
the temperature dependent quantity characterizing the linear speed of growth of
the phase, r is the effective size of the phase particles, s is the surface area
between the phases, T'_σ is the transition temperature change under the action of
stresses. Considering expressions (2), (3), (4), the values δp and T' were
expressed in terms of σ_{ll}. In the case of a cubic crystal the thermal conductivity

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ACCESSION NR: AP4013088

and thermal expansion are isotropic. If the speed of motion of the boundary be-
tween the phases is limited by the heat supply the quantity u is not directionally
dependent, but if it depends on the speed of the phase change it is a function
of direction. The anisotropic case was considered. The values of δp and T'

determined above were substituted in the elastic potential expression giving
components of the stress tensor in terms of the deformation tensor. The expression
for the overall compression was determined and found to be a function of the
frequency. For simplicity the moduli of elasticity of both phases were assumed to
coincide as were the axes of symmetry similarly orientated. The propagation
velocity was examined for the cubic directions $[100]$, $[110]$, $[111]$. In only one
of the three directions was the speed found to be a function of frequency, and in
this direction it was attenuated. The expressions for speed in the three direc-
tions were developed. They were checked with the isotropic case developed by
Krivoglaz and found consistent. The relaxation time was the same in both cases.
The results should prove useful in analyzing experimentally determined dependencies
of the wave vector on direction in crystals having orientation formations in the
second phase. They should also be of help in determining the contribution to
absorption of the mechanism described in this paper and the contribution determined
by a scattering at the boundary between the matrix and the second phase. Orig. art.
has: 35 equations.

Card 3/4

ACCESSION NR: AP4013088

ASSOCIATION: VNII monokristallov i osobo chisty#kh veshchestv, Khar'kovskiy gosuniversitet (VNII of Monocrystals and High Purity. Substances, Kharkov State University)

SUBMITTED: 20Mar63   ENCL: 00

SUB CODE: GP, MA   NO REF SOV: 002   OTHER: 000

Card 4/4

SOLUNSKIY, V.I.; TIMAN, B.L.

Volume recombination with ambipolar diffusion in a gas
discharge plasma. Zhur. tekh.fiz. 34 no. 2:262-265 F '64.
(MIRA 17:6)

Timan, B. L.,

USSR.

Influence on ion interaction of their equilibrium concentrations in the case of a multiple thermal ionization of a gas. B. L. Timan (Ducpropetrovsk Mining Inst.). *Zhur. Ekspil. Teoret. Fiz.* 27, 708-11(1954); cf. *C.A.* 49, 5108d.—Substituting equil. concns. of multiple ions and electrons in a gas, obtained by means of the Debye-Hückel formula for free energy, into the Saha equation, a relation between ionization temp. and pressure is obtained. It is shown that the decrease of twice ionized ions with increasing pressure is slower than the decrease obtained from Saha's formula without taking interaction into account. S. Pakswer

TIMAN, B. L.

USSR/Physics - Astrophysics

Card 1/1   : Pub. 22 - 18/44

Authors   : Timan, B.

Title   : Dependence of equipondsrant concentrations of ions on a pressure in a thermally ionized gas

Periodical   : Dok. AN SSSR 97/6, 1013-1014, Aug 21, 1954

Abstract   : A well known method used for the determination of various physical properties of star atmospheres is described in connection with its improvement by taking into account the intermolecular reactions of gas. Three references (1951-1953).

Institution : Dorepropetrovskiy Mining Institute im. Artema

Presented by: Academician A. F. Ioffe, April 15, 1954

TE'AN, B. L.

"On the Theory of the Thermal Ionization of Gas." Cand Phys-Math Sci, Khar'kov, State U imeni A. M. Gor'kiy, Min Higher Education, USSR, Khar'kov, 1955. (KL, No 8, Feb 55)

SO: Sum. No. 631, 26 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (14)

FD-2363

USSR/.hysics - Thermodynamics

Card 1/1   Pub. 146 - 28/34

Author   : Aptekar', I. L., and Timan, B. L.

Title   : Adiabatic process at high temperatures

Periodical   : Zhur. eksp. i teor. fiz. 28, 758-759, Jun 1955

Abstract   : In connection with the influence of thermal ionization upon the thermal properties of gases at high temperatures (B. L. Timan, ibid. 27, 1954), it is of interest to consider the adiabatic process taking into account thermal ionization; in this case the original equation for the adiabatic process will have the form $pdV + dU' + I_1 dN_1 = 0$, where dV is the volume increment, I_1 is the energy of single ionization, dU' is increment in the internal energy of the gas, and dN_1 is the increment in the number of ions during heating of gas. The author finally finds the degree of ionization $x = N_1/N$ as a function of temperature and obtains the graph. Two references: L. A. Landau and Ye. M. Lifshits, Statisticheskaya fizika, GITTL, 1952.
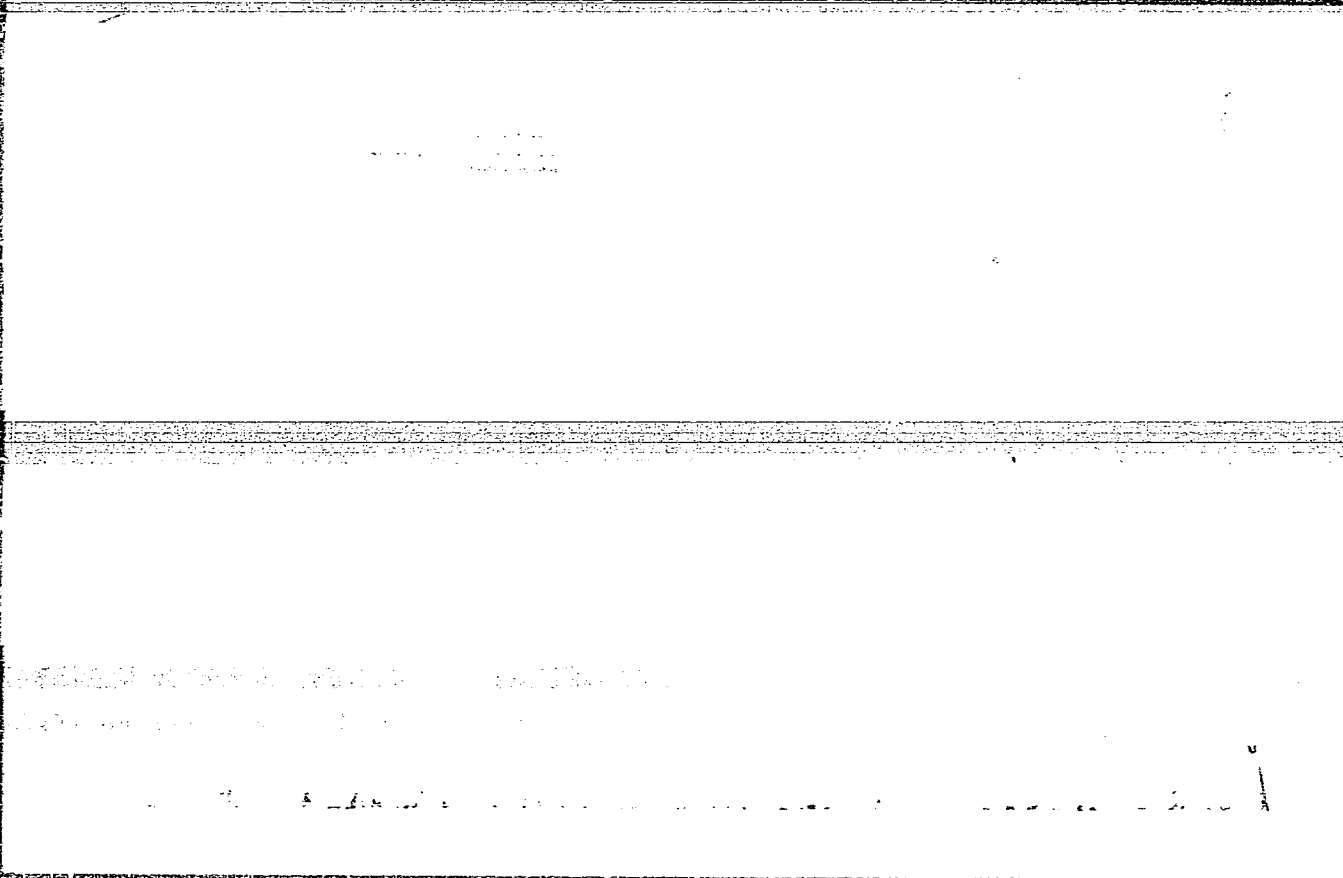
Institution : Dnepropetrovsk Mining Institute *

Submitted   : November 22, 1954

* Dnepropetrovskiy gornyy institut
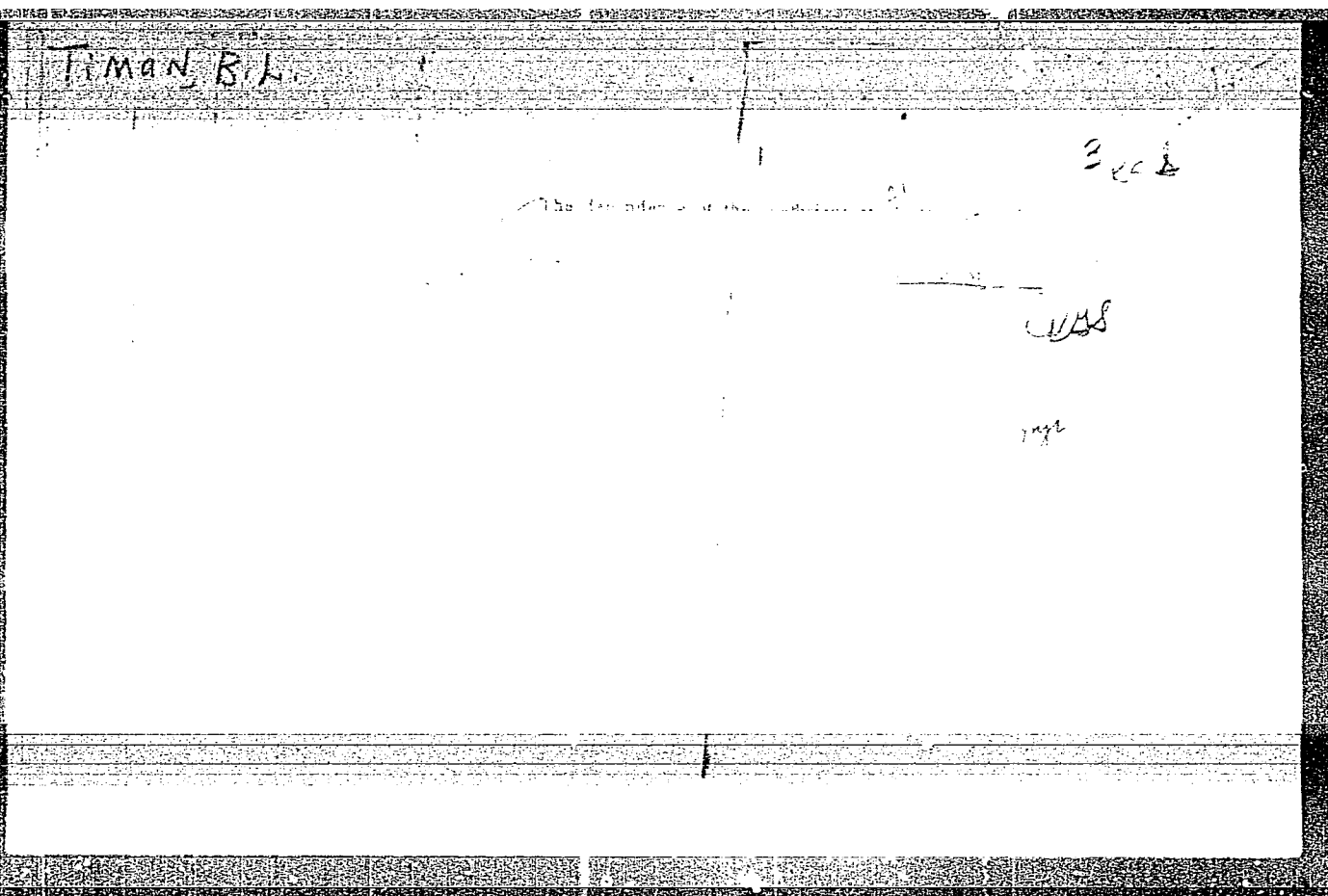
Timan B.L.

Limac

S. 711-12(1956) Dec.

The differential cross section for bremsstrahlung in the

] / ;,,.///v , ㅌ. ㅡ .

USSR/Electronics - Gas Discharge and Gas Discharge Instruments   H-7

Abs Jour   : Referat Zhur - Fizika, No 5, 1957, 12346

Author   : Aptekar', I.L., Timan, B.L.
Inst   : -
Title   : Dependence of the Coefficient of Electron Recombination on
              Temperature and the Pressure.

Orig Pub   : Zh. tekhn. fiziki, 1956, 26, No 2, 343-347

Abstract   : An investigation is made of the dependence of the coeffi-
              cient of electron recombination in a gas as a function of
              the pressure and temperature (T). The theory of thermal
              ionization is employed, it being proposed that T is not
              too high and that the gas is weakly ionized. Only a sin-
              gle mechanism of recombination is considered, namely, the
              recombination of an ion with an electron, with a transfer
              of energy to a neutral atom. The equation of detailed ba-
              lance is then of the form: $Q_j n_a^2 = Q_r n_a n_i n_e$, where Q_j is

Card 1/2

Category : USSR/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 439

Author   : Timan, B.L.
Inst   : Dnepropetrovsk Mining Inst.
Title   : Evaluation of the Influence of Non-Central Forces on Bremsstrahlung
           in a Neutron-Protron Collision.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 5, 881-888

Abstract : The differential cross section of bremsstrahlung in a neutron-proton
           collision was calculated in the Born approximation and under the assump-
           tion that the n-p interaction is describable by a potential
           $$V = (\alpha + \beta G_\rho G_n + d\, S_{pn})\, P_M g_i e^{-\lambda r}/r$$
           where P_M is the Majorana operator, $\lambda^{-1} = 1.18 \times 10^{-13}$ cm, $g_1 = 0.280$ oc,
           and $g_3 = 0.404$ hc are the depth of the potential well for the singlet and
           triplet states respectively. $\alpha = 1 - g/2$, $\beta = g/2$, $g = 0.07$, $\gamma = 0.775$,
           $S_{pn} = 6\, (Sr)/r^2 - 2S^2$. In comparison with calculations that do not account
           the non-central forces, the radiation maximum obtained here is sharper for
           scattering angles $\vartheta \sim \pi 0$.

Card   : 1/1

USSR/Physical Chemistry - Thermodynamics. Thermochemistry. Equilibria,
    Physical - Chemical Analysis, Phase Transitions.   B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3749.

Author : Yu. V. Gayek, B.L. Timan.
Inst   :
Title   : Influence of Multiple Thermal Ionization on Specific Heat of
         Gases.

Orig Pub: Zh. eksperim. i teor. fiziki, 1956, 31, No 4, 706-707.

Abstract: The gas specific heat adjustment (C'_V) for multiple thermal
        ionization was computed in a general form. The specific heat
        depends strongly on temperature in case of tens and hundreds
        of thousands degrees. See also RZhKhim, 1955, 54609.

Card   : 1/1   -1-

TIMAN, B.L.

Equilibrium of chemical reactions taking place in an electric field. Zhur.fiz.khim. 31 no.9:2143-2144 S '57.   (MIRA 11:1)

1.Dnepropetrovskiy gornyy institut im. Artema.
          (Chemical equilibrium)
          (Electric fields)

TIMAN, B. L.

Influence of an external electric field on chemical reactions in gases. Dokl. AN SSSR 112 no.5:894-895 F '57.   (MLRA 10:4)

1. Dnepropetrovskiy gornyy institut im. Artema. Predstavleno akademikom A.N. Frumkinym.
(Electric fields)   (Ions)   (Chemical reaction--Mechanism)

5(4)
AUTHOR: Timan, B. L.   SOV/76-33-6-4/44

TITLE: On the Possibility of the Influence of a Non-homogeneous Electric
                    and Magnetic Field on   Chemical Reaction in a Gas (O
                    vozmozhnosti vliyaniya neodnorodnogo elektricheskogo i magnitnogo
                    polya na khimicheskuyu reaktsiyu v gaze)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6, pp 1189-1190 (USSR)

ABSTRACT: If one assumes reactions, in which the initial substances (IS)
                    exhibit apolar or diamagnetic molecules, and the reaction products
                    (RP) are dipolar or paramagnetic, to occur in a non-homogeneous
                    electric or magnetic field, the field strength acting upon the (RP)
                    will be stronger than upon the (IS); hence, when switching on the
                    field, a diffusion (D) of the gas molecules will occur, which will
                    be stronger for the (RP) than for the (IS). The (D) will be in
                    action until an equilibrium is attained, corresponding to the
                    strength field. Let a substance absorbing the (RP) selectively (or
                    therewith forming compounds, by which the (RP) may be again
                    regenerated) be introduced on the spot where the (D) of the (RP)
                    is most intense; in this way it is possible to influence the
                    ·reaction course, and this may be of practical advantage in the
Card 1/2   production of NH_3, NO, HCl, etc. There are 5 references, 2 of which

On the Possibility of the Influence of a Non-homogeneous   SOV/76-33-6-4/44
Electric and Magnetic Field on   Chemical Reaction in a Gas

are Soviet.

SUBMITTED: February 12, 1957

Card 2/2

L 30095-66   E.T(1)/EWT(m)/T/EWP(t)/ETI   IJP(c)   GG/JD

ACC NR: AP6012504   SOURCE CODE: UR/0181/66/008/004/1279/1281

AUTHOR: Timan, B. L.

ORG: All-Union Scientific Research Institute of Single Crystals,
Khar'kov (Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov)

TITLE: Differences in the change of the average phonon frequency in
crystals of certain syngonies under the influence of shear and longi-
tudinal deformations

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1279-1281

TOPIC TAGS: crystal symmetry, phonon interaction, crystal deformation,
thermal expansion, free energy

ABSTRACT: Using the expression for the free energy of a crystal, the
author calculates the coefficients in the expression for the change in
phonon frequency of a deformed crystal, averaged over all types of the
normal modes, by comparing the corresponding components of the stress
and strain tensors, and their temperature-expansion components. Since
the tensor of thermal expansion is a symmetrical tensor of second rank
in the case of cubic, tetragonal, hexagonal, trigonal, and orthorhombic
syngonies, it can be shown that in the cubic, orthorhombic, hexagonal,

Card   1/2

L 30095-66

ACC NR: AP6012504   0

and tetragonal syngonies (classes 4mm, $\bar{4}$2m, 422, and 4/mmm) the shear deformation will exert no influence on the change of the average phonon frequency of the crystal, in first approximation in terms of the deformation tensor, but only in the second approximation. In the case of shear deformation the change in the average frequency of the phonons of these syngonies is therefore proportional to the square of the deformation tensor, whereas in longitudinal deformation it is proportional to the first power of the deformation tensor. A formula is given for the proportionality coefficients. Orig. art. has: 7 formulas.

SUB CODE: 20/ SUBM DATE: 01Nov65/ ORIG REF: 001/ OTH REF: 001

Card   2/2   ()

L 16931-66   EWT(1)/EWT(m)/T/EWP(t)/ETI   IJP(c)   JD

ACC NR: AP6015501   (N).   SOURCE CODE: UR/0181/66/008/005/1633/1635

AUTHOR: Gershun, A. S.; Sysoyev, L. A.; Timan, B. L.

ORG: VNII of Single Crystals, Scintillation Materials and Super Pure Materials, Khar'-kov (VNII monokristallov, stsintilyatsionnykh materialov i osobo chistykh veshchestv)

TITLE: Some properties of the volt-ampere characteristics of thin CdS single crystals with non-ohmic contacts

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1633-1635

TOPIC TAGS: cadmium sulfide, indium, electric hysteresis

ABSTRACT: X- and Z-cuts of CdS crystals 100 to 200 μ thick were prepared with In electrodes deposited on both sides of their surfaces in a vacuum of 10^{-5} mm Hg. The In contacts were deposited at (a) room temperature and (b) upon a crystal preheated to 300 degrees. The volt-ampere characteristic of Z-cuts prepared at room temperature showed a pronounced hysteresis. It appears that the external voltage is compensated by the internal emf generated in the In-CdS-In system under the influence of the applied electrical field. The X-cuts with In electrodes prepared at room temperature had a residual voltage; however, the generated inverse current is smaller by one order of magnitude. The difference in the behavior of the In contacts on surfaces of the X- and Z--cuts might be caused by the different crystallographic and chemical composition of the

Card 1/2

ACC NR: AP6015501   0

specimens. The volt-ampere characteristics of the specimen with X-cut contacts prepared on a preheated crystal showed only an insignificant hysteresis, whereas with the Z-cut prepared in the same manner, the hysteresis was quite pronounced. The presence of hysteresis is related to the nonohmicity and to the inertial properties of the system. Orig. art. has: 1 figure.

SUB CODE: 20/   SUBM DATE: 14Sep65/   OTH REF: 003

awm

Card 2/2

ACC NR: AP7000004

SOURCE CODE: UR/0070/66/011/006/0933/0935

AUTHOR: Sysoyev, L. A.; Timan, B. L.; Gorshun, A. S.; Rayskin, E. K.; Konvisar, L. V.; Komar', V. K.

ORG: All-Union Scientific Research Institute of Monocrystals, Scintillators and Extra Pure Chemical Materials (Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh khimicheskikh veshchestv)

TITLE: Growing cadmium sulfide crystals for ultrasonics amplification

TOPIC TAGS: single crystal growth, semiconductor single crystal, cadmium sulfide, ultrasonic amplification, photosensitivity, dark current, annealing, crystal orientation

ABSTRACT: Conditions were determined for growing CdS monocrystals with optimum properties for ultrasonic wave amplification. Equipment was designed for growing crystals from a melt under inert gas at several hundred atmospheres pressure, moving the container with the crystallizing material through a high temperature zone. The cadmium and sulfur to be used contained about $10^{-4}\%$ oxygen and about $10^{-5}\%$ of other impurities; cadmium was used in excess, and most of it was removed by zone purification. Dark resistance and photosensitivity were increased and thermal stresses in the monocrystal were removed by annealing in a bed of fine crystalline CdS powder

UDC: 548.52

Card 1/2

ACC NR: AP7000004

under H_2S at atmospheric pressure for 24 hours at 1323°K. After annealing the dark resistance was 5×10^{10} ohm. cm and could be changed by 10^5-10^6 times by illumination. The quality of the hexagonal CdS crystal of wurtzite structure grown parallel to the C_6 axis depends on its orientation with respect to the melt: surfaces terminating in Cd atoms lead to the desired monocrystal; S atoms result in defective polycrystals. Orientation can be determined by examination of the piezoelectric effect and the type of etch pits of the base planes (0001) and (000$\bar{1}$). Optimum growth was obtained with a temperature gradient of 3-5 degrees/mm at the crystallization front; crystal growth at 10-12 mm/hr. Examination of a CdS crystal grown under these conditions showed it was suitable for amplifying ultrasonic waves. It was established the increased noise level at maximum amplification was not associated with transmission of the ultrasonic waves through the crystal. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 19Jul64/ ORIG REF: 001/ OTH REF: 003

Card 2/2

L 7781-66   EWT(1)/EPF(c)/I/ENP(x)   IJP(c)   RM/WW

ACC NR: AP5028054   SOURCE CODE: UR/0046/65/011/004/0490/0492

AUTHOR: Aronov, B.I.; Timan, B.L.

ORG: All-Union Scientific-Research Institute of Single Crystals, Scintillation Materials, and Highly Pure Chemical Substances (Vsesoyuznyy n.-i. institut monokristallov, stsintillyatsionnykh materialov i osobo chistykh veshchestv)

TITLE: On the diffraction of light at ultrasonic waves in crystals

SOURCE: Akusticheskiy zhurnal, v. 11, no. 4, 1965, 490-492

TOPIC TAGS: light diffraction, acoustic diffraction, crystal optic porperty, acoustic oscillation, acoustic absorption, ultrasonic wave propagation

ABSTRACT: In an article published elsewhere J. Melngaili and A. A. Maradudin (Phys. Rev. 1963, v. 131, 5, 1972.), with the aim of clarifying the possibility of determining the elastic constants of the third order, performed a theoretical calculation of the diffraction picture, arising during the simultaneous transmission of light and ultrasound through a transparent crystal. The article examined only the effect of the anharmonicity of oscillations on the diffraction picture. Melngaili and Maradudin cited the unpublished experimental work of D. Bolef and E.Kelly, who failed to obtain satisfactory agreement with the theoretical data. This disagreement is, apparently, due to the failure to take into account the effect of other factors (particularly the damping of the acoustic wave) on the diffraction picture. The present article

Card   1/2   UDC: 534-8+535.42

L 7781-66

ACC NR: AP5028054

performs the calculation of the diffraction picture taking the anharmonicity of oscillations, as well as the absorption of ultrasonic waves, into account. The authors also made calculations for the case when the amplitude of ultrasonic wave oscillations is relatively low and the anharmonicity of the oscillations can be ignored. Orig. art. has: 2 figures and 14 formulas.

SUB CODE: SS, OP, GP / SUBM DATE: 29Sep64 / OTH REF: 001/
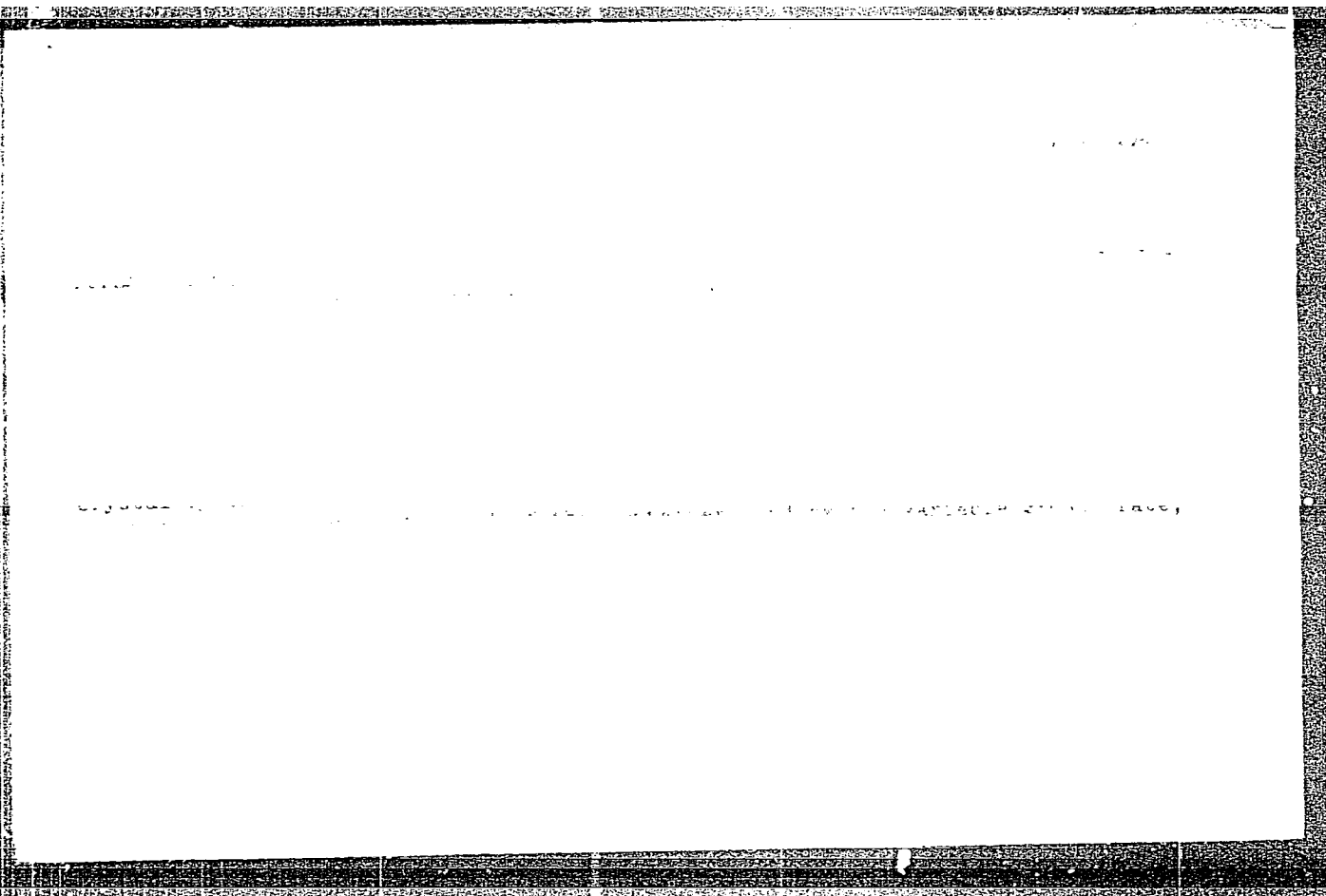
Card 2/2

BIRMAN, B.I.; TIMAN, B.L.

Analyzing the conditions for the appearance of a varied distribu-
tion of impurities in crystals in the case of directional crystal-
lization. Dokl. AN SSSR 161 no.1:78-80 Mr '65.

(MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov,
stsintillyatsionnykh materialov i osobo chistykh khimicheskikh
veshchestv.

Two special cases are treated: constant growth rate and constant distribution co-

ACCESSION NR: AP5000215

and Especially Pure Chemical Substances

SUBMITTED: 13Sep64

HR REF SOV: 005   OTHER: 001

Card   3/3

TIMAN, B.L.

Theory of the absorption of high-frequency transverse sound in dielectrics. Fiz. tver. tela 6 no.3:950-952 Mr '64.

(MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov, Khar'kov.

GEGUZINA, S.Ya.; TIMAN, B.L.

    Propagation of sound in an elastically anisotropic two-phase mixture.
    Fiz. met. i metalloved. 17 no.1:20-23 Ja '64.   (MIRA 17:2)

    1. Vsesoyuznyy nauchno-issledovatel'skiy institut monokristallov i
    osobo chistykh veshchestv i Khar'kovskiy gosudarstvennyy universitet.

ACCESSION NR: AP4013411   S/0057/64/034/002/0262/0265

AUTHOR: Solunskiy, V.I.; Timan, B.L.

TITLE: Volume recombination and ambipolar diffusion in a gas discharge plasma

SOURCE: Zhurnal tekhn.fiz.,v.34, no.2, 1964, 262-265

TOPIC TAGS: plasma, gas discharge, gas discharge plasma, ambipolar diffusion,
volume recombination, electron loss

ABSTRACT: The radial distribution of electrons in a gas discharge in a cylindrical
chamber is calculated with volume recombination as well as ambipolar diffusion ta-
ken into account. The differential equation for the electron density, n, is non-
linear because of the term in n^2 due to volume recombination. A power series in the
square of the radial coordinate is substituted for n and a recursion formula is de-
rived for the coefficients. Inserting the boundary condition that the density van-
ish on the wall of the chamber leads to a relation between the ionization coeffici-
ent, z, the recombination coefficient, b, the ambipolar diffusion coefficient, D,
the discharge tube radius, R, and the axial electron density, n_0. This relation is
approximated for b not too large, and it is put into a form suitable for computa-

Card 1/2

ACCESSION NR: AP4013411

tion. For $b = 0$, this relation reduces, as it must, to Shottky's equation $J_0(\sqrt{zR^2/D}) = 0$. An approximation to the relation obtained is $n_0 = (z-5.76D/R^2)/0.67b$. The ratio of the rate of loss of electrons due to volume recombination to that due to ambipolar diffusion is found to be approximately $0.11bR^2 n_0/D$, Orig. art.has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 28May62   DATE ACQ: 26Feb64   ENCL: 00

SUB CODE: PH   NR REF SOV: 003   OTHER: 001

Card 2/2

ACCESSION NO: AP4019869   S/0181/64/006/003/0950/0952

AUTHOR: Timan, B. L.

TITLE: Theory of absorption of high-frequency transverse sound in dielectrics

SOURCE: Fizika tvordogo tela, v. 6, no. 3, 1964, 950-952

TOPIC TAGS: sound, absorption, high frequency, high frequency sound, sound absorption, acoustical phonon, thermal phonon, absorption probability

ABSTRACT: The author's purpose is to determine the temperature and frequency dependence of sound-absorption probability per unit time, with no assumptions regarding the low frequency of acoustical phonons relative to the frequency of thermal phonons with which the acoustical phonons collide. He obtains an expression for the absorption probability, which, in its most general form, is given by

$$w \sim \left(\frac{kT}{\theta}\right)^3 \frac{\hbar\omega_1}{M s^3}\, \omega_1 \left\{ F_2 + 4\frac{kT}{\hbar\omega_1}\left[\Gamma(4)\,\zeta(4) - F_3' - \tfrac{1}{2}F_3\right] + \left(\frac{kT}{\hbar\omega_1}\right)^2 F_4 \right\}.$$

Card 1/2

ACCESSION NO: AP4019869

$$\text{where } F_i = \int\limits_{\frac{\hbar\omega_1}{2kT}\left(\frac{s_1}{s_1}-1\right)}^{\frac{\hbar\omega_1}{2kT}\left(\frac{s_2}{2s_1}+1\right)} \frac{t^i}{e^t-1}dt, \quad F_3 = \int\limits_0^{\frac{\hbar\omega_1}{2kT}\left(\frac{s_2}{s_1}-1\right)} \frac{t^3}{e^t-1}dt. \ ;$$

s is the velocity of sound, the subscripts 1 and 2 refer to acoustical and thermal phonons respectively, and $t = \frac{\hbar\omega_1}{kT}$. When $\frac{\hbar\omega_1}{kT}$ is much greater or much less than 1, this expression reduces to much simpler forms, but when $\hbar\omega_1 \sim kT$, the situation is much more complex. The author concludes that his work will have value in studying absorption of sound at low temperatures, since there is a contribution of impurities and defects with specific characteristics for the temperature and frequency dependence. "In conclusion, I express my thanks to Professor A. I. Akhiyezer and to V. G. Peschanskiy and V. G. Bar'yakhtar for discussions of this work and for a number of valuable suggestions." Orig. art. has: 1 figure and 7 formulas.

ASSOCIATION: Vsesoyuzny*y nauchno-issledovatel'skiy institut monokristallov, Khar'kov (All-Union Scientific Research Institute of Single Crystals)

SUBMITTED: 10Nov63   DATE ACQ: 31Mar64   ENCL: 00
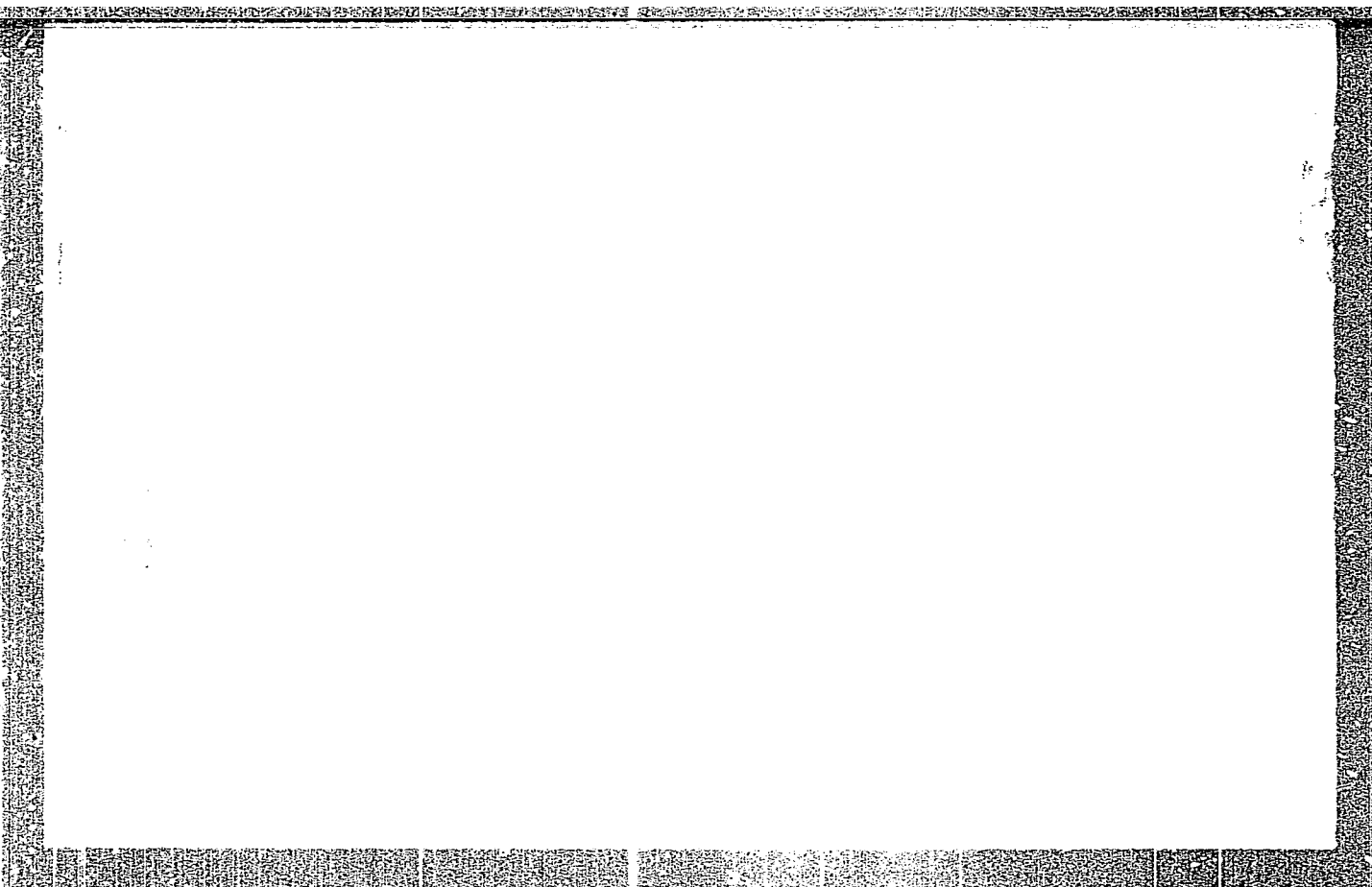
SUB CODE: PH   NO REF SOV: 002   OTHER: 002
Card   2/2

Source: Mathematical Reviews, Vol 10, No. 1
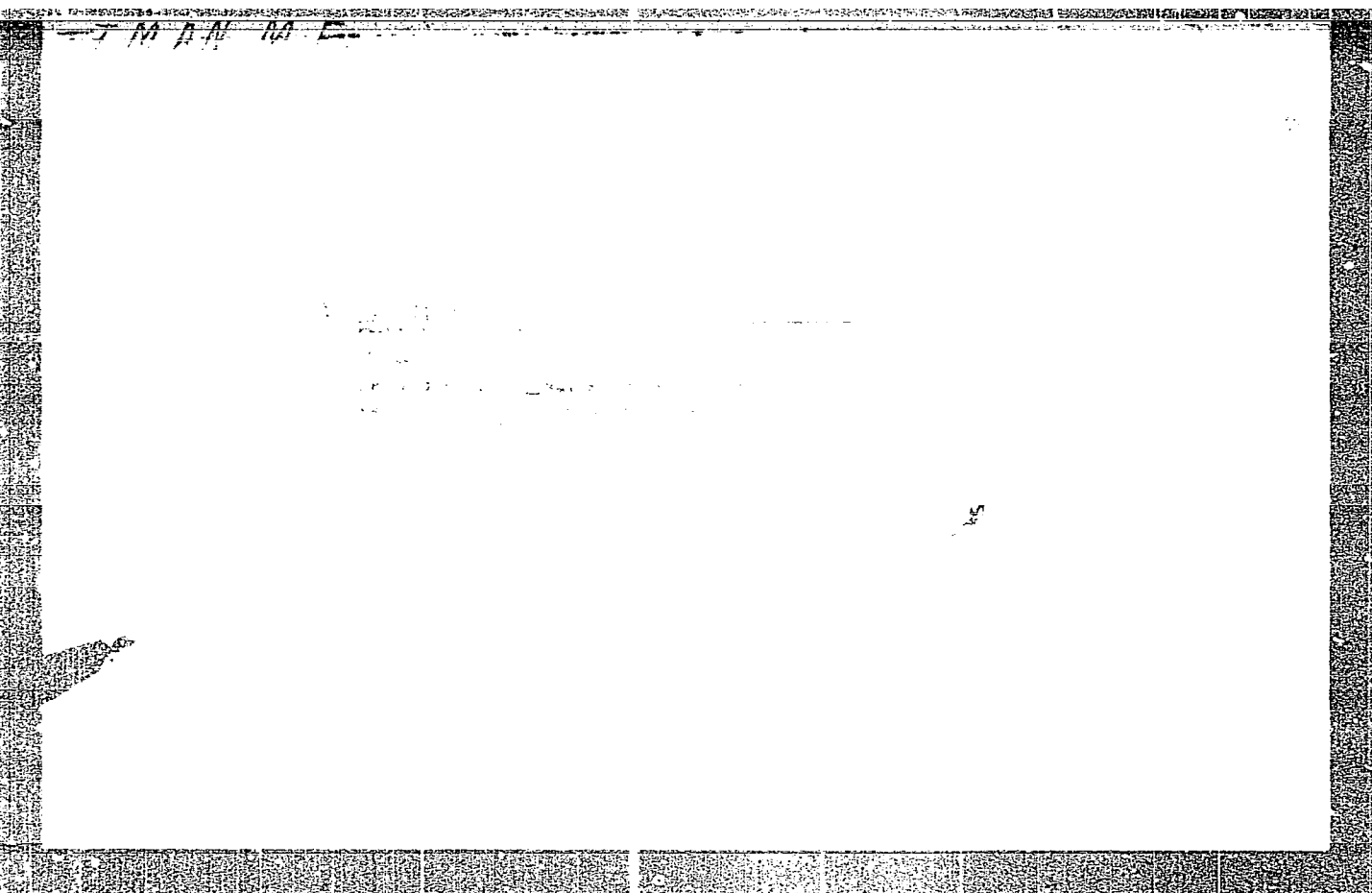
TIMAN, M. F.

Theory of Functions of a Real Variable, Approximation of Functions   (3664)
Soobshch. AN Gruz. SSR, Vol 14, No 7, 1953, pp 385-392

Timan, M. F.
(C, Alpha, Beta)-Summability of Fourier Series of Functions of Two Variables

Proves three theorems relating to the summability of double Fourier series.
Offers a proff of a theorem previously published without proof in Dokl. AN SSSR,
Vol. 76, No 5, 1951, pp 647-649, which is in effect a generalization of an
earlier theorem originally published in 1939 by Andersen, also concerned with
double Fourier series.

So: Moscow, Referativnyy, Zhurnal -- Matematika No 6, 1954 W-31059

Timan, M. F.

USSR/Mathematics - Summation of double series

FD-1022

Card 1/1

Pub. 64 - 2/9

Author   :   Zhak, I. Ye. (Stalingrad), and Timan, M. F. (Dnepropetrovsk)

Title   :   Summation of double series

Abstract   :   The authors remark that the problems of the summation of multiple series have been still little investigated. In the present work they discuss the new concepts of bounded regularity and bounded summability in connection with a study of the (C,a,b) and (A) summations of double numerical series. They also discuss the problems of summing double trigonometric series, particularly double Fourier-Lebesgue series. Seventeen references, 11 USSR (e.g. A. S. Bezlyudnyy, Dissertation, Dnepropetrovsk, 1949; V. G. Chelidze, Soobshch. AN GruzSSR, VIII, No 6 (1947); I. I. Ogiyevetskiy) and 6 Western (e.g. G. Robinson, 1926; K. Knopp, 1939; M. T. Cheng, 1942; O. Szasz, 1942; B. Prasad, 1933).

Institution :   --

Submitted   :   15 December 1952

TIMANOE

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1.

Zygmund (Chicago, Ill.).

_/ /M ɪŀ·Ŋ, Ŋ̣ /̣_
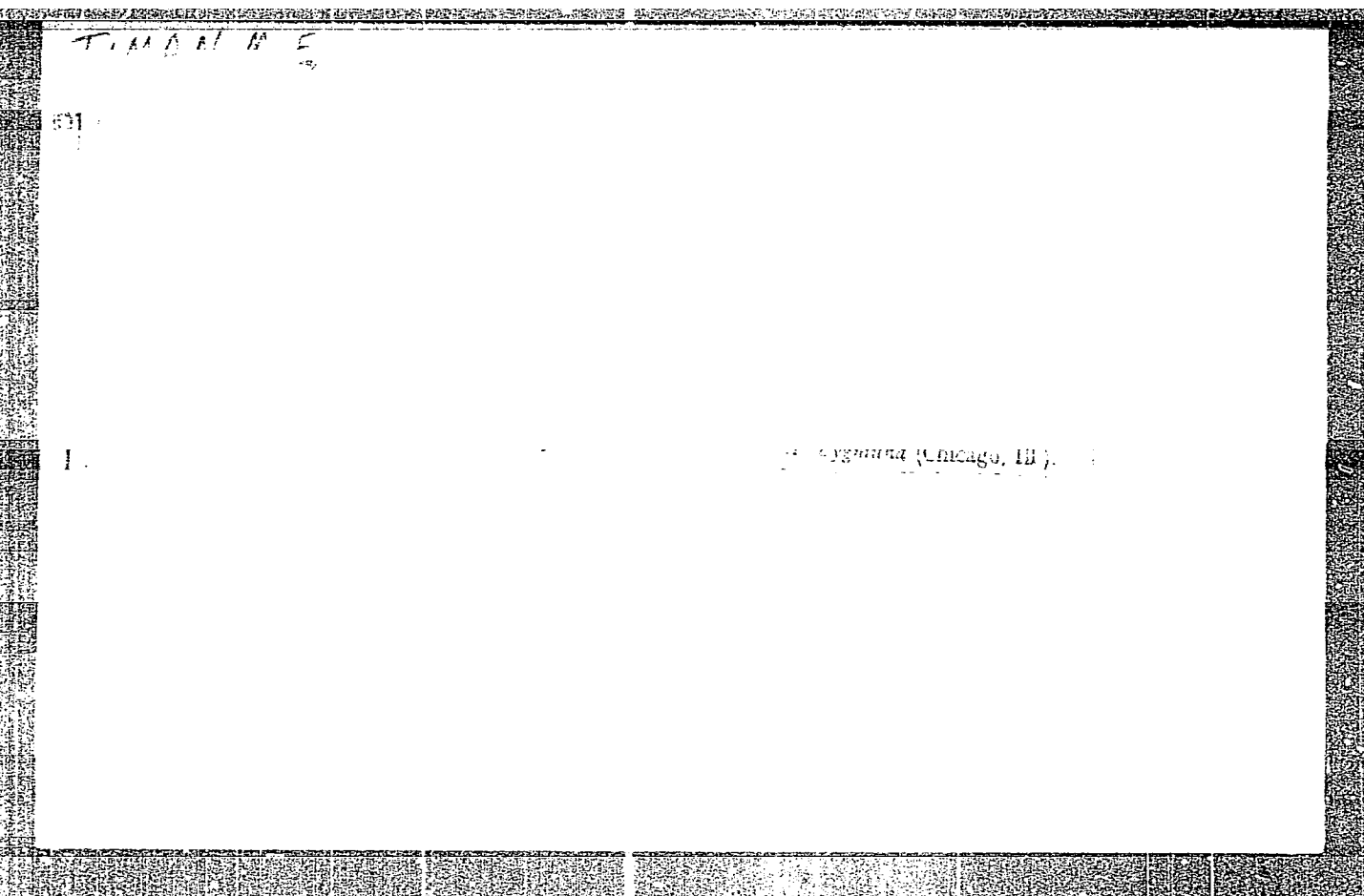
SUBJECT   USSR/MATHEMATICS/Theory of approximations   CARD 1/2   PG-703
AUTHOR   TIMAN, M.F.
TITLE   On the connection between the complete and the particular best
           approximation in the mean for functions of several variables.
PERIODICAL Doklady Akad.Nauk $\underline{112}$, 24-26 (1957)
           reviewed 4/1957

Let L_p $(1 \leqslant p \leqslant \infty)$ be the space of all measurable functions $f(x_1, x_2, \ldots x_k)$
which are 2π-periodic in every variable and the modulus of which is integrable
with p-th power over the k-dimensional cube of periods, where

$$\|f\|_{L_p} = \left\{ \int_0^{2\pi} \cdots \int_0^{2\pi} |f(x_1, \ldots, x_k)|^p \, dx_1 \cdots dx_k \right\}^{1/p}.$$

Let further

$$E_{n_1, \ldots, n_k}(f)_{L_p} = \inf_T \|f(x_1, \ldots, x_k) - T_{n_1, \ldots, n_k}(x_1, \ldots, x_k)\|_{L_p}$$

be the complete best approximation of the function f by the trigonometric
polynomials T of degree $\leqslant n_i$ in the variables x_i (i=1,2,...k). According to the
theorem of Fubini, for every $r < k$ the function $f(x_1, \ldots, x_k)$ considered as a
function of $x_1, \ldots, x_r$, belongs to L_p too for almost all $(x_{r+1}, \ldots, x_k)$, likewise
its best approximation $E_{n_1 \ldots n_r}(f; x_{r+1}, \ldots x_k)$ with respect to the chosen r

Doklady Akad.Nauk <u>112,</u> 24-26 (1957)   CARD 2/2   PG - 703

variables. The term $E_{n_1,\ldots,n_r,\infty}(f) = \| E_{n_1,\ldots,n_r}(f;x_{r+1},\ldots,x_k)\|_{L_p}$
is denoted as particular best approximation with respect to the variables
$x_1,\ldots,x_r$. The author proves the theorem: for every finite $p > 1$ there exists
a constant C_p, not depending on f, such that

$$E_{n_1,\ldots n_k}(f)_{L_p} \leqslant C_p \min \left\{ E_{n_{\nu_i}\ldots n_{\nu_i}\infty}(f)_{L_p} + E_{n_{\nu_{i+1}}\ldots n_{\nu_k}\infty}(f)_{L_p} \right\}$$

$$(\nu_m = 1,2,\ldots k; \quad m=1,2,\ldots i).$$

In the cases $p = 1$, $p = \infty$ there holds the inequation

$$E_{n_1\ldots n_k}(f) \leq C \min \left\{ \left[E_{n_{\nu_1}\ldots n_{\nu_i}\infty}(f) + E_{n_{\nu_{i+1}}\ldots n_{\nu_k}\infty}(f)\right] \ln n_{\nu_1}\ldots\ln n_{\nu_i} \right\}$$

$$\nu_m = 1,2,\ldots,k; \quad m=1,2,\ldots i, \quad i \leq \left[\frac{k}{2}\right],$$

where C is an absolute constant.

INSTITUTION: Agricultural Institute, Dnjepropetrovsk.

AUTHOR   TIMAN A.F.,TIMAN M.F.   20-5-13,37

TITLE   On the Dependences Between the Moduli of Smoothness of the Func-
tions Assumed On the Entire Real Axis.
(O zavisimosti mezhdu modulyami gladkosti funktsiy,zadannykh na vsey
veshchestvennoy osi, -Russian)

ABSTRACT   Be it that $1 \leqslant p < \infty$ and $f(x)$ is an arbitrarily assumed function in
the interval $(-\infty, \infty)$, for which $\|f\|_{L_p} = (\int_{-\infty}^{\infty} |f(x)|^p dx)^{1/p} < \infty$ applies.

The authors investigate the function $w_k(f,t)_{L_p} = \sup_{|h| \leqslant t} [\int_{-\infty}^{\infty} |\sum_{\nu=0}^{k} (-1)^{k-\nu} (^k_\nu) f(x+\nu h)|^p dx]^{1/p}$, for any natural $k \geqslant 1$, which is defined upon the
semiaxis $t \geqslant 0$ and within the corresponding metric represented the
modulus of smoothness of the order k for $f(x)$. At $k < \nu$, $w_\nu(f;t)_{L_p} \leqslant 2^{\nu-k} w_k(f;t)_{L_p}$ APPLIES! EXAmples of functions may be given for which
this inequation (which evaluate; the modula of smoothness in an up-
ward direction by the moduli of smoothness of lower order)is changed
into an equation with respect to the order (about $t \to 0$). The authors
next give a theorem by which the order of the moduli of smoothness
of the function may be evaluated in an upward direction by their mo-
duli of smoothness of higher orders.

Card 1/2   <u>Theorem:</u> In the case $1 \leqslant k < \nu$ at $0 < t \leqslant 1/2$,

On the Dependences Between the Moduli of Smoothness
of the Functions Assumed On the Entire Real Axis, 20-5-13/57

$$w_k(f;t)_{L_p} \leq c_{v,k} t^k \int_t^1 \int_{t_1}^2 \cdots \int_{t_{v-k-1}}^{v-k} (w_v(f;t_{v-k})_{L_p}/t_{v-k}^v) dt_1 \cdots dt_{v-k} \quad \text{applies.}$$

Here $C_{v,k}$ is a constant which does not depend upon the function f.
The following inequation always applies at $k \gg 1$

$$w_k(f;t)_{L_p} \leq c_k t^k \int_k^1 (w_{k+1}(f;u)_{L_p}/u^{k+1}) du \quad \text{two corollaries resulting}$$

from this theorem are given. In conclusion two lemmata are written
down, which may by used as a proof of the theorem.
(No ill....)

ASSOCIATION   State University Dnepropetrovsk
PRESENTED BY KOLMOGOROV A.N., Member of the Academy
SUBMITTED   24.9.1956
AVAILABLE   Library of Congress
Card 2/2

PONOMARENKO, V.G. [Ponomarenko, V.H.]; TIMAN, M.F.

Classes of saturation of functions of several variables.
Dop. AN URSR no.10:1282-1286 '62.   (MIRA 16:4)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.

PONOMARENKO, V.G.; TIMAN, M.F.

Some generalizations of Zygmund's theorem. Uch. zap. Kaz. un.
124 no.6:266-270 '64.   (MIRA 18:9)

TIMAN, M.F.

Best approximation of a function and linear summation methods for Fourier series. Izv. AN SSSR. Ser. mat. 29 no.3:587-604 '65.

(MIRA 18:6)

L 25638-66   EWT(d)/T/EWP(1)   IJP(c)

ACC NR: AP6016078   SOURCE CODE: UR/0038/65/029/003/0587/0604

AUTHOR: Timan, M. F.

ORG: none

TITLE: Best approximation of a function and linear methods of summing Fourier series

SOURCE: AN SSSR. Izvestiya. Seriya matematicheskaya, v. 29, no. 3, 1965, 587-604

TOPIC TAGS: linear operator, Fourier series, function, approximation

ABSTRACT: In this work the deviation of the measurable periodic function $f(x)$ L_p from the linear operators constructed on the basis of its Fourier series is evaluated depending on the rate of decrease of the series of best approximations of this function. The effect of the metric of the space on the order of variation of the investigated deviation is also considered. Several theorems are formulated and proved with regard to this deviation. Orig. art. has: 4 formulas. [JPRS]

SUB CODE: 12 / SUBM DATE: 15Apr64 / ORIG REF: 012 / OTH REF: 004

Card 1/1 fV   UDC: 517.5

16(1)   16.4000

67067
SOV/44-59-9-9208

Translation from: Referativnyy zhurnal.Matematika,1959,Nr 9,p 112 (USSR)

AUTHOR: Timan,M.F.

TITLE: On the Remainder Term in the Tauber Theorem of Hardy and Littlewood

PERIODICAL: Nauchn.zap.Dnepropetr.un-t,1956,45,215-219

ABSTRACT: The following theorem is proved: Let $A(x,y)$ be a function monotonely increasing in both arguments on $(0,\infty)$, $A(0,0) = A(0,y) = A(x,0)$. Let $\varphi_1(x)$ and $\varphi_2(y)$ be arbitrary moduli of continuity. If for all $s>0$, $\delta>0$ there exists the integral

$$\int_0^\infty e^{-st} d \int_0^\infty e^{-\sigma\varphi} \, dA(t,\varphi),$$

then from the relation

$$\int_0^\infty e^{-st} d \int_0^\infty e^{-\sigma\varphi} \, dA(t,\varphi) = \frac{1}{s\sigma} + 0\left\{\frac{\varphi_1(s)\cdot\varphi_2(\sigma)}{s\cdot\sigma}\right\}$$

Card 1/2

16(1)

On the Remainder Term in the Tauber Theorem of Hardy and Littlewood

for $s, \sigma \to 0$ there follows the relation

$$A(x,y) = x \cdot y \left\{ 1 + 0 \left[\varphi_1 \left(\frac{1}{\sqrt{\log \frac{1}{\varphi_1(1/x)}}} \right) \right] + 0 \left[\varphi_2 \left(\frac{1}{\sqrt{\log \frac{1}{\varphi_2(1/y)}}} \right) \right] \right\}$$

for $x, y \to \infty$.

F.I.Kharshiladze

Card 2/2

SOV/39-46-1-6/6

AUTHOR: Timan, M.F. (Dnepropetrovsk)

TITLE: Inverse Theorems of the Constructive Functions Theory in the Spaces L_p ($1 \leqslant p \leqslant \infty$) (Obratnyye teoremy konstruktivnoy teorii funktsiy v prostranstvakh L_p ($1 \leqslant p \leqslant \infty$)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 1, pp 125-132 (USSR)

ABSTRACT: Let L_p denote the space of all $2\widetilde{\pi}$ - periodic functions $f(x)$ for which the norm for $1 \leqslant p < \infty$ is equal to

$$\left\{ \int_0^{2\widetilde{\pi}} |f(x)|^p \, dx \right\}^{1/p} < \infty \quad \text{and for } p = \infty \qquad \text{equal to}$$

vrai $\sup_{0 \leqslant x \leqslant 2\widetilde{\pi}} |f(x)| < \infty$. Let $T_n(x)$ be a trigonometric poly-nomial of at most n-th degree, and let for $f(x) \in L_p$ and integer $k \geqslant 1$ be :

$$E_n(f)_{L_p} = \inf_{T_n} \| f(x) - T_n(x) \|_{L_p}$$

Card 1/4

Inverse Theorems of the Constructive Functions Theory   SOV/39-46-1-6/6
in the Spaces $L_p (1 \leqslant p \leqslant \infty)$

$$\omega_k(f,t)_{L_p} = \sup_{|h| \leqslant t} \| \Delta_h^k f(x) \|_{L_p} = \sup_{|h| \leqslant t} \left\{ \int_0^{2\pi} \left| \sum_{\nu=0}^k (-1)^{k-\nu} C_k^\nu f(x+\nu h) \right| dx^p \right\}^{1/p}$$

Theorem: If $f(x) \in L_p$, $1 < p < \infty$, then it holds :

$$\omega_k(f; \tfrac{1}{n})_{L_p} \leqslant \begin{cases} \dfrac{M_{p,k}}{n^k} \left\{ \displaystyle\sum_{\nu=1}^n \nu^{kp-1} E_{\nu-1}^p (f)_{L_p} \right\}^{1/p} , & 1 < p \leqslant 2 \\[3em] \dfrac{M_{p,k}}{n^k} \left\{ \displaystyle\sum_{\nu=1}^n \nu^{2k-1} E_{\nu-1}^2 (f)_{L_p} \right\}^{1/2} , & 2 \leqslant p < \infty \end{cases}$$

Theorem: If $f(x) \in L_p$, $1 < p < \infty$ and $\displaystyle\sum_{n=1}^\infty n^{r-1} E_{n-1}(f)_{L_p} < \infty$

$r > 0$, then it holds

Card 2/4

Inverse Theorems of the Constructive Functions Theory   SOV/39-46-1-6/6
in the Spaces L_p $(1 \leqslant p \leqslant \infty)$

$$\omega_k(f^{(r)} ; \tfrac{1}{n})_{L_p} \leqslant$$

$$\leqslant \begin{cases} M_{p,k,r}\left\{\dfrac{1}{n^k}\left[\displaystyle\sum_{\nu=1}^{n} \nu^{p(k+r)-1}E_{\nu-1}^p(f)_{L_p}\right]^{1/p} + \displaystyle\sum_{\nu=n+1}^{\infty}\nu^{r-1}E_{\nu-1}(f)_{L_p}\right\}, & 1 < p \leqslant 2 \\[3ex] M_{p,k,r}\left\{\dfrac{1}{n^k}\left[\displaystyle\sum_{\nu=1}^{n} \nu^{2(k+r)-1}E_{\nu-1}^2(f)_{L_p}\right]^{1/2} + \displaystyle\sum_{\nu=n+1}^{\infty}\nu^{r-1}E_{\nu-1}(f)_{L_p}\right\}, & 2 \leqslant p < \infty \end{cases}$$

Here the constants M do not depend on f.
There are 15 references, 6 of which are Soviet, 4 Polish,
2 English, 2 American, and 1 French.

Card 3/4

Inverse Theorems of the Constructive Functions Theory   SOV/39-46-1-6/6
in the Spaces L_p $(1 \leq p \leq \infty)$

SUBMITTED: April 3, 1957

Card 4/4   USCOMM-DC-60470

AUTHOR: Timan, M.F.

TITLE: Inversion Theorems of the Constructive Theory of Function of Several Variables (Obratnyye teoremy konstruktivnoy teorii funktsiy mnogikh peremennykh)

PERIODICAL: Doklady Akademii nauk SSSR,1958,Vol 120,Nr 6,pp 1207-1209(USSR)

ABSTRACT: A former result of the author [Ref 1,2,5] is generalized to functions of several variables.
Theorem: Let $f(x,y)$ be 2π-periodic in x and y. Then it is :

$$\left\| \Delta_{h_1}^{r_1} \Delta_{h_2}^{r_2} f(x,y) \right\| \leqslant \frac{C}{m^{r_1} n^{r_2}} \sum_{k=1}^{m} \sum_{l=1}^{n} k^{r_1-1} l^{r_2-1} E_{k-1,\,l-1}$$

where

$$E_{k_1 l} = E_{k_1 l}(f) = \inf_{T} \left\| f(x,y) - T_{k_1 l}(x,y) \right\| , \quad h_1 = 0\left(\frac{1}{m}\right), h_2 = 0\left(\frac{1}{n}\right)$$

$T_{m,n}(x,y)$ is a trigonometric polynomial of the orders m in x and n in y and

Card 1/ 2

Inversion Theorems of the Constructive Theory of Function $\quad$ SOV/20-120-6-11/59
of Several Variables

$$\triangle_{h_1}^{r_1} \triangle_{h_2}^{r_2} f(x,y) = \sum_{i=o}^{r_1} \sum_{j=o}^{r_2} (-1)^{r_1+r_2-i-j} \, c_{r_1}^{i} \, c_{r_2}^{j} \, f(x+ih_1, \, y+jh_2)$$

The theorem can be generalized to functions of k variables in
an obvious way.
A further theorem contains a generalization of a theorem of
Montel [Ref 4] .
There are 5 references, 4 of which are Soviet, and 1 French.

PRESENTED: February 13, 1958, by A.N.Kolmogorov, Academician

SUBMITTED: December 4, 1956

1. Mathematics   2. Functions

Card 2/2

16(1)   SOV/20-124-3-8/67

AUTHOR: Timan, M.F.

TITLE: On the Problem Concerning the Connection Between Complete and
              Partial Best Approximations of Functions of Several Variables
              (K voprosu o svyazi mezhdu polnym i chastnymi nailuchshimi
              priblizheniyami funktsiy mnogikh peremennykh)

PERIODICAL: Doklady Akademii nauk SSSR,1959, Vol 124,Nr 3,
                                                  pp 527-528 (USSR)

ABSTRACT: A theorem of a former publication of the author [Ref 2] is
              improved inasmuch as several inequalities for differentiable
              functions can be concluded from it, especially the result of
              Bernshteyn [Ref 5] :
              $$E_{n_1,n_2}(f) \leqslant C\left\{\omega(f; \tfrac{1}{n_1}) + \omega(f; \tfrac{1}{n_2})\right\}$$
              Theorem: (with notations from [Ref 2]) Let $f(x_1,\dots,x_k)$
              be continuous and 2π-periodic in each variable.
              Then it holds :

Card 1/2

On the Problem Concerning the Connection Between   SOV/20-124-3-8/67
Complete and Partial Best Approximations of Functions of Several Variables

$$E_{n_1,\ldots,n_k}(f) \leqslant C \min \left\{ \left[E_{m_{\nu_1},\ldots,m_{\nu_i},\,\infty}(f) + \right. \right.$$

$$\left. + E_{n_\nu,\ldots,n_k\,\infty}(f) \right] \ln \frac{n_{\nu_1}}{n_{\nu_1}-m_{\nu_1}+1} \cdots \ln \frac{n_{\nu_i}}{n_{\nu_i}-m_{\nu_i}+1} \right\} \quad ,$$

$$\nu_r = 1,2,\ldots,k \quad , \quad r = 1,2,\ldots,i \quad , \quad i \leqslant \left[\frac{k}{2}\right] \quad , \quad m_\nu \leqslant n_\nu$$

C does not depend on f, m_ν, n_ν .

There are 5 Soviet references.

ASSOCIATION: Dnepropetrovskiy sel'skokhozyaystvennyy institut
              (Dnepropetrovsk Agricultural Institute)
PRESENTED: September 30, 1958, by S.N. Bernshteyn, Academician
SUBMITTED: September 29, 1958

Card 2/2

TIMAN, M.F. (Dnepropetrovsk)

Comments pertaining to the problem of transformations of
multiple sequences. Ukr.mat.zhur. 12 no.1:99-100 '60.

(MIRA 13:10)

(Sequences (Mathematics)) (Transformations (Mathematics))

TIMAN, M.F.

      Absolute convergence of multiple Fourier series. Dokl.AN SSSR 137
no.5:1074-1077 Ap '61.   (MIRA 14:4)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut. Predstavleno
akademikom V.I.Smirnovym. ¦
                         (Fourier's series)

TIMAN, M.F.

Best approximation and modulus of continuity of functions plotted
on the entire real axis. Izv. vys. ucheb. zav.; mat. no.6:108-120
'61.   (MIRA 15:3)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
     (Approximate computation) (Functions of real variables)

TIMAN, M.F.

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several variables. Dop. AN URSR no.12:1546-1548 '61.

(MIRA 16:11)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.
Predstavleno akademikom AN UkrSSR Yu.A. Mitropol'skim
[Mytropol's'kyi, IU.O.].

16.4200

40083
S/020/62/145/004/005/024
B112/B102

AUTHOR: Timan, M. F.

TITLE: Certain linear processes of summing Fourier series and the best approximation

PERIODICAL: Akademiya nauk SSSR.   Doklady, v. 145, no. 4, 1962, 741 - 743

TEXT: Some estimates of the deviations

$$R_n(f,\lambda)_{L_p} = \left\| f(x) - \frac{a_0}{2} - \sum_{k=1}^{n} \lambda_k^{(n)} (a_k \cos kx + b_k \sin kx) \right\|_{L_p}$$ are derived. $\int$

$\|f(x)\|_{L_p}$ has the meaning of $\left\{ \int_0^{2\pi} |f(x)|^p dx \right\}^{1/p}$. In all these estimates, $R_n(f,\lambda)_{L_p}$ is compared with

$$E_n(f)_{L_p} = \inf_{\alpha_k, \beta_k} \left\| f(x) - \sum_{k=0}^{n} (\alpha_k \cos kx + \beta_k \sin kx) \right\|_{L_p}.$$

The following is the principal result: $R_n(f,\lambda)_{L_p} \leqslant$

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Certain linear processes of ...

S/020/62/145/004/005/024
B112/B102

$$\leqslant C \left\{ \sum_{k=0}^{n} \left| \lambda_k^{(n)} - 2\lambda_{k+1}^{(n)} + \lambda_{k+2}^{(n)} \right| (n-k+1) E_k(f)_{L_p} \sum_{\nu=n-k}^{n} \frac{1}{\nu+1} + \left| 1 - \lambda_1^{(n)} \right| \sum_{\nu=0}^{n} E_\nu(f)_{L_p} \right\}.$$

This is specialized for Bernstein-Rogozinskiy and Jackson-Valleé-Poussin sums.

ASSOCIATION: Dnepropetrovskiy sel'skokhozyaystvennyy institut
              (Dnepropetrovsk Agricultural Institute)

PRESENTED: March 15, 1962, by V. I. Smirnov, Academician

SUBMITTED: March 7, 1962

Card 2/2

TIMAN, M.F.

Deviation of harmonic functions from their boundary values
and the best approximation. Dokl.AN SSSR 145 no.5:1008-1009
'62.

(MIRA 15:8)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut. Predstavleno
akademikom S.N.Bernshteynom.

(Harmonic functions)

TIMAN, T.A.

Growth of functions conjugated to integral functions of finite
power. Dokl. AN SSSR 160 no.5:1026-1027 F '65.

1. Submitted September 7, 1964.   (MIRA 18:2)

TIMAN, T.A.

Continuation of functions continuous according to Holder. Dokl. AN
SSSR 162 no.5:1009-1010 Je '65.
(MIRA 18:7)

1. Submitted December 12, 1964.

TIMAN, T.A.

Proof of Jung's geometrical theorem and its analog in the theory
of stochastic processes. Usp. mat. nauk 20 no.3:213-218 My-Je '65.
(MIRA 18:6)

USSR

541.124

6564. Effect of ions on gas reactions. V. L. TALIAN.
Letter in *Zh. eksper. teor. Fiz.*, 27, No. 5(11) 653-4
(1954) In Russian.
   The equation

$$c_2 c_3^3/c_1^4 = pK(T) \exp\{-4\pi d^2 e^2 p_i/3(kT)^2 r_0\}$$

has been derived (mathematics not given) for the
effect of ions (e.g. in a glow discharge) on the con-
centration of NH_3 produced from $N_2 + 3H_2$; here
c_1, c_2 and c_3 are, respectively, the concentrations of
NH_3, N_2 and H_2, d is the dipole moment of NH_3,
r_0 and e are the ionic radius and charge, $pK(T)$ is the
equilibrium constant for ammonia synthesis, and p_i
is the partial pressure of the ion.   R. C. MURRAY

BRUTMAN, Ye.I.; MAKAROCHKINA, V.I.; TIMANER, R.S.; SHURYAK, V.D.

Authors' abstracts. Zhur.mikrobiol., epid. i immun. 42 no.2:141-142
F '65.
(MIRA 18:6)

1. Odesskiy institut epidemiologii i mikrobiologii imeni Mechnikova,
Odesskaya infektsionnaya bol'nitsa i Odesskaya gorodskaya sanitarno-
epidemiologicheskaya stantsiya.

Salmonellosis ep idemiology

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no.
2, 1965, 111-112

Card 2/3

KHOLTSMANIS, A.V.[Holcmanis, A.], otv. red.; TILMANIS, O.F., kand.
    arkh., red.; BAZHANOVA, S., red.; BOKMAN, R., tekhn. red.

[City planning and housing construction in the Latvian S.S.R.]
Gradostroitel'stvo i zhilishchnoe stroitel'stvo v Latviiskoi
SSR; sbornik statei. Riga, Izd-vo Akad. nauk Latviiskoi SSR,
1962. 201 p.   (MIRA 16:5)

1. Latvijas Padomju Socialistiskas Republikas Zinatnu Akademija.
2. Chlen-korrespondent Akademii stroitel'stva i arkhitektury
SSSR (for Tilmanis).   (Latvia--City planning)
        (Latvia--Apartment houses--Design and construction)

TIMANOV, F.P., mayor.

Establishing the drift setting prior to the instant of bomb release.
Vest.Vozd.Fl.39 no.7:30-35 Jl '56.   (MLRA 10:1)
                (Air warfare)

Subject   : USSR/Aeronautics - training   AID P - 4726

Card 1/1   Pub. 135 - 7/23

Author   : Timanov, F. P., Maj.

Title   : Execution of directional control just before the bomb
                release.

Periodical   : Vest. vozd. flota, 7, 30-35, Jl 1956

Abstract   : The author, on the basis of his analysis, proves that
                it is not late to make a turn even immediately before
                the bomb release, in order to avoid considerable
                errors in the directional control. Five diagrams,
                1 table. The article deserves attention.

Institution : None

Submitted   : No date

TIMANOV, N.

ANDREYEV, P.; TIMANOV, N.

Results of operating ZIS-155 buses for four years. Avt.transp. 32
no.5:13-15 My '54.   (MLRA7:7)

1. Pervyy avtobusnyy park Moskvy.
   (Motor buses)

TIMAKOV, N.

Work experience of the technical assistance service. Avt. transp.
37 no.8:23-24 Ag '59.   (MIRA 12:12)
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1. MIFELADZE, P., TIMANOV, P.

2. USSR (600)

4. Construction Industry - Finance

7. Ways in which to lower construction costs, Fin. i kred. SSSR No. 3, 1953.

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LIMANOV, S. G.

U S S R .

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TIMANOVA, L.

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(Journal of Physical Chemistry (U.S.S.R.), 1948, vol 22,
pp 221-231 (in Russian): Chemical Abstracts, 1948, vol
42, July 20, col 4894). Cathodic polarisation of copper
and iron in 55% aqueous glycol is determined by depolarisa-
tion by dissolved oxygen. The limiting c.d. is at 16° 0.006
m.amp/sq. cm. for both metals. The cathodic polarisation of
aluminium is complicated by solution of the oxide film.
Addition of water lowers the hydrogen overvoltage and
raises i_0; in pure water, i_0 = 0.015 m.amp./sq. cm.   Anodic
polarisibility of copper, iron, and aluminium is very small.
Calculation of the potential drop in the local cells shows that
corrosion in aqueous glycol is determined mainly by the
cathodic polarization, the ohmic drop of potential being
negligible except when the dissimilar metals are separated
by several cm. This is important for corrosion by antifreeze
solutions. The corrosion inhibitor V-2 containing dextrin

TIMANOVSKAYA, L.Ye., kand.tekhn.nauk

Dynamics of systems regulating the power of diesel locomotives.
Vest.TSNII MPS 24 no.3:18-23 '65.

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. (MIRA 18:8)